

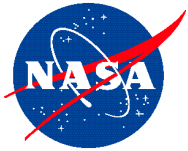
# **NETWORK AND MISSION SERVICES PROJECT**

Network and Mission  
Services Project

Code 450

## **NCC 98 Initial Release Operational Readiness Review (ORR)**

**January 26, 1999**



# NCC 98 INITIAL RELEASE ORR

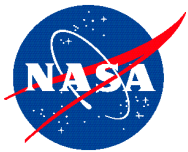
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## AGENDA

### MORNING SESSION

9:00	Project Overview	Roger Clason
9:30	Release Readiness Status	John Russell
9:50	Operational Evaluation Testing	Melanie Wiedmann
10:20	Break	
10:30	Equipment Suite Status	Roger Clason
10:45	Facilities Readiness	Lynn Myers
10:55	Customer/Element Readiness	Shelley Harper
11:15	Security Readiness	Richard Price
11:30	Lunch	



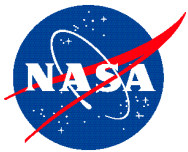
## NCC 98 INITIAL RELEASE ORR

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### AFTERNOON SESSION

1:30	Internal Transition Plan	John Russell
1:45	External Transition Plan	Jul Scarborough
2:00	Contingency Plan	Jul Scarborough
2:15	CSOC Operational Readiness	Joe Snyder
2:20	Open Item Review	Roger Clason
2:30	Board Readiness Assessment	Bill Mack



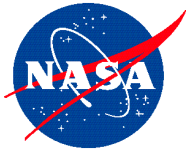
# NCC 98 INITIAL RELEASE ORR

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## PROJECT OVERVIEW

ROGER CLASON

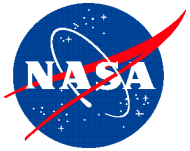


## PROJECT HISTORY

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- The Service Planning Segment Replacement (SPSR) Project was authorized in 1994
  - To provide a flexible scheduling capability for SN services and improve scheduling efficiency
  - To replace obsolete subsystems and reduce recurring maintenance/licensing costs
  - Planned as a joint effort between the Networks Division (530), the Advanced Technology Division (520), and a 520 contractor

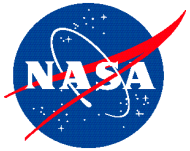


## PROJECT SCOPE

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- The scope of the effort was expanded over the next 2 years in response to a dynamic environment
  - The NCC Protocol Gateway (NPG) was added to the architecture
    - Provides transition path from legacy 4800BB protocol to industry standard protocols such as TCP and FTP
    - Additional budget allocated from funds earmarked for technology insertion
  - The Firewall was added to the architecture
    - SN systems were declassified necessitating the replacement of the Restricted Access Processor (RAP)
    - Additional budget allocated to maintain Sensitivity/Criticality Level 3 posture

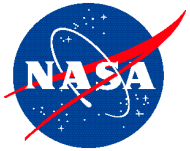


## PROJECT SCOPE

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- The Intelligent Terminals (ITs) were completely removed from the architecture and Communications & Control Segment (CCS)/SPSR interface was redesigned
  - Provided a single operator interface to the system via HP workstations and reduced costs of NCCDS evolution in the long term
  - Suspended most maintenance activities to reallocate budget to CCS modifications
- Y2K compliance was added to project requirements due to release timing
- The larger scoped effort was named NCC 98 and the full architecture was presented in the November 1995 System Design Review



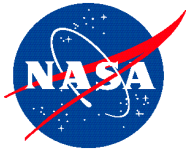
## PROJECT SCHEDULE

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- NCC 98 system testing fell significantly behind schedule in April 1998
  - Test progress rate was less than planned due to higher than expected error rates in custom code
  - Root cause of high error rates was significant discrepancy between estimated system size and lines of code actually written
  - Size estimates were based on experience with object oriented technology applied to much smaller systems - the benefits of OO didn't scale linearly



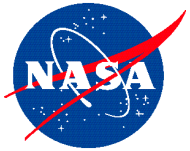


## PROJECT SCHEDULE

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- A schedule slip into 1999 was unavoidable
  - NCC 98 delivery was split into 2 releases to achieve Y2K Implementation milestone by Agency mandated date of February 1999
    - Initial Release is Y2K compliant and includes all system components and backward compatible functionality
    - Completion Release, to become operational in May 1999, will provide the flexible scheduling capability

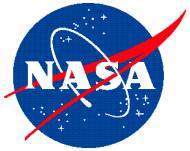


## NCC OUTLOOK

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- Development activities over the next several years will focus on the evolution of the CSOC Integrated Operational Architecture (IOA)
  - Tentative plans for current NCC capabilities as outlined in the CSOC proposal include:
    - Incorporation of the SPSR into the Data Services Management Center (DSMC) at WSC
    - Development of the CCS Replacement (CCSR) under a SODA task

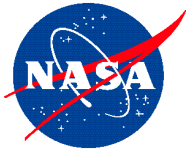


## REVIEW SUMMARY

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- SPSR Requirements Review - November 1994
- SPSR System Requirements Review - December 1994
- SPSR Preliminary Design Review - June 1995
- NCC 98 System Design Review - November 1995
- SPSR Critical Design Review - February 1996
- CCS Critical Design Review - February 1996
- NPG Critical Design Review - February 1996
- NCC 98 System Operations Review - March 1997
- NCC 98 Initial Release Operational Readiness Review - January 1999
- NCC 98 Completion Release Operational Readiness Review - May 1999

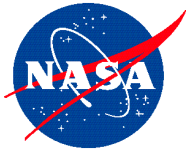


# RELEASE CAPABILITY SUMMARY

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- Initial Release
  - Capabilities
    - Backward compatible 4800BB interfaces to external system
    - TCP scheduling and real-time interfaces and FTP vector interface (backward compatible with transitional NCC 97 interfaces)
    - New TDRS HIJ service support
    - Virtual spacecraft (dual support) events support
    - Web-based TDRS Unscheduled Time (TUT) services
  - Architecture
    - SPSR replaces SPS
    - NPG replaces NCC Front End (NFE)
    - Firewall replaces RAP
    - HP workstations replace ITs

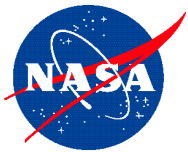


## RELEASE CAPABILITY SUMMARY

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- Initial Release Architecture Continued
  - CCS renovated for new interfaces and Y2K compliance
  - Service Accounting Segment (SAS) renovated for new interfaces and Y2K compliance
  - Network and System Management component added to manage distributed client/server architecture
  - NCC Central Delogger (NCD) added
- Complete Release
  - Flexible scheduling capability



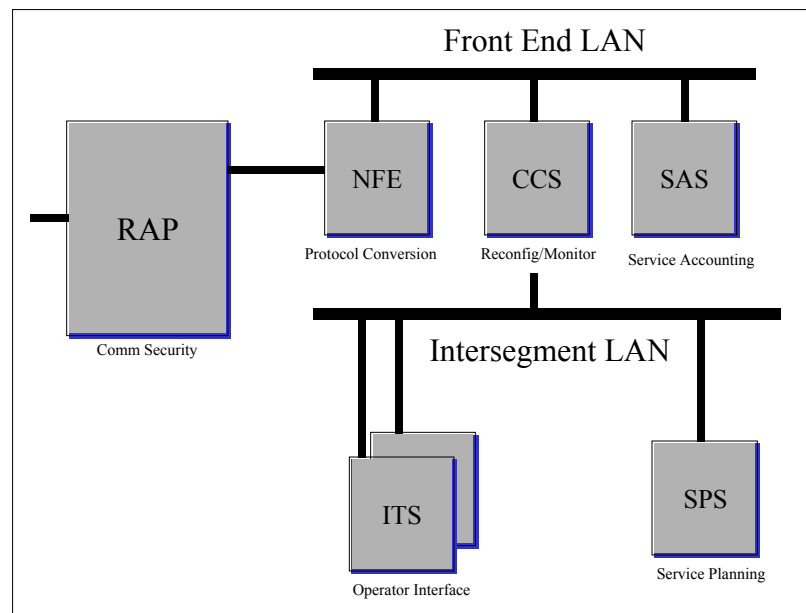
# NCC 98 INITIAL RELEASE ORR

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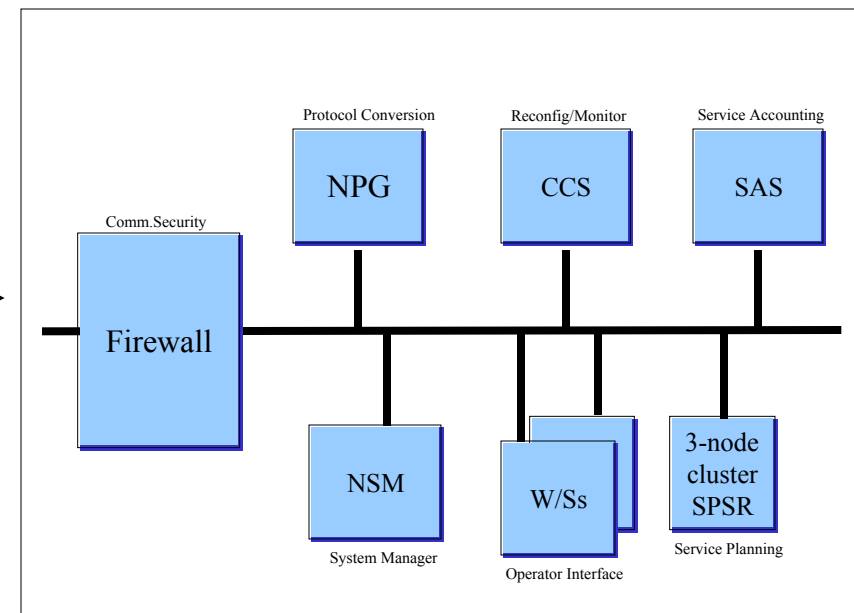
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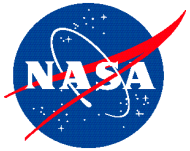
## PROJECT OVERVIEW

### Baseline NCC



### NCC 98



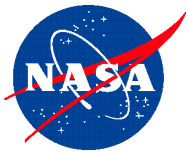


# NCC 98 TEST PROCESS OVERVIEW

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- Unit and Component Test
  - Performed by component development groups
  - Verify that component functions as designed
- Integration and System Test
  - Performed by Joint Integration and System Test Team (JISTT)
  - Verify that NCC 98 components function as a system and that system meets required functionality
- Operations Evaluation Test (OET)
  - Performed by independent test teams
  - Verify that requirements as implemented will support operations and that external interfaces will support operations
  - Provide operator training



# **NCC 98 INITIAL RELEASE ORR**

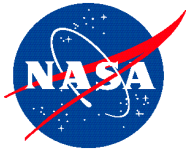
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## **C. RELEASE READINESS STATUS**

**JOHN RUSSELL**





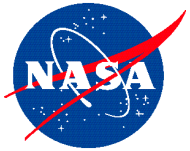
# RELEASE READINESS STATUS

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## TOPICS

- Y2K Validation Status
- Status of NCC 98 Functionality
- PR Conversion Summary
- As Built Documentation Status
- Issues and Observations

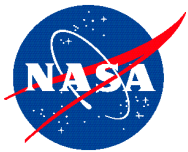


## Y2K VALIDATION STATUS

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- Software Compliance
  - All software developed for NCC 98 was designed for Y2K compliance
  - Existing CCS software was modified to be Y2K compliant
    - assumes replacement of VAX by the year 2020
  - All OS and COTS/GOTS assert Y2K Compliance
    - Patches applied through NCC Change Requests (NCRs) as necessary
- Y2K Testing Status
  - Performed in accordance with the *NASA Year 2000 Agency Test and Certification Guidelines and Requirements*, Volume 1, July 2, 1998.
  - Successfully completed by the JISTT in August 1998
    - 17 of 18 planned tests successfully completed
    - 1 test item deferred to the Completion Release (TSWs)
    - All Problem Reports (PR) resolved and validated

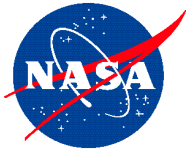


## STATUS OF NCC 98 FUNCTIONALITY

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- **Functionality of NCC 98 Initial Release**
  - Described in NCCDS 98 Contents Letter
    - URL <http://ncc98.gsfc.nasa.gov/bld-cont/nccds98.htm>
  - Satisfies Revision 2 of NCCDS 1998 System Requirements Document (SRD)
  - Untested Functionality
    - Deferred to Completion Release - Service-level flexibility, TDRS Sets, Alternate Schedule Add Requests (SARs), Wait Listing, TDRS Scheduling Windows (TSWs), Event Flexibility
    - Delivered “As Is” - CCS ODM GUI, GAMs, SLRs, Delta-T Message
  - Impacted by unresolved (i.e., “converted”) PRs

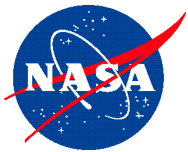


## STATUS OF NCC 98 FUNCTIONALITY

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- Functional Testing
  - Successfully completed by JISTT on November 13, 1998
  - Planned to execute 461 Test Items (NCC 98 STRR)
    - Derived from system requirements
    - 345 Test Items successfully validated
    - 40 test items deferred to the Completion Release testing
    - 53 test items removed from plan per programmatic adjustments
    - 23 waived because of unresolved (i.e., converted) PRs
  - All resolved PRs were verified



## PROBLEM REPORT STATUS

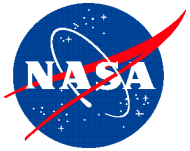
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- Problems discovered were documented via Problem Reports (PRs).
- PR Summary:

Priority	# Fixed	# Converted	# Deferred
1	0	0	0
2	591	0	19
3	1092	165	32
4	508	242	9

- \* Converted PRs have been approved for delivery to operations; Deferred PRs deal with functions whose delivery have been deferred to the completion release.

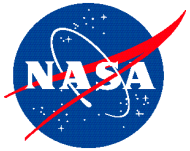


## PR CONVERSION SUMMARY

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- PR Conversion Process approved and implemented June 1998 to ensure Y2K Milestones were met by Agency mandated dates
- Summary of Process
  - Release Leader proposes PRs for conversion
  - Impact of problem and workaround are identified
  - List is distributed to Operations, Operations Evaluation Test (OET) group, System Engineering, and System Test for comment
  - Release Leader meets with Ops/OET teams to clarify PR or workaround
  - Final disposition is summarized and distributed to all reviewers and NCCPO

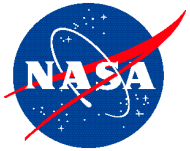


## PR CONVERSION SUMMARY

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- Results of PR Conversion Effort
  - 398 - PRs Converted
  - 200 - PRs Require No Workaround
  - 164 - PRs Require “Minor” Workaround or Avoidance (“Don’t do that!”)
  - 43 - PRs Require “Significant” Workaround
    - “Significant” workaround meets one of the three conditions
      - » The need for the operator to be immediately aware of the workaround
      - » The impact to the system if the documented problem is encountered
      - » The effort or personnel required to perform the workaround and/or recover from the problem
  - 7 PRs to be converted
    - Pending Acceptance By Reviewers



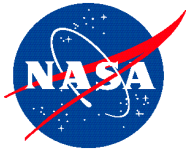
## AS BUILT DOCUMENTATION

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- As-Built Documentation is currently being developed for
  - Firewall (completion 6/99)
  - CCS (completion 3/99)
  - NPG (completion 3/99)
  - NCD (completion 3/99)
  - NSM (completion 3/99)
  - SPSR (completion 3/99)
- All As-Built documents are currently on schedule



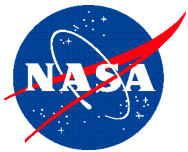


## ISSUES AND OBSERVATIONS

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- Differences in Operations Concepts, platforms, applications and experienced with NCC 98 will require
  - Cooperation of customers and other external entities
    - NCC Operations begins utilizing new features and tools
    - Troubleshooting time will increase
  - Operations and system developers to work closely together
    - Understanding of known problems and workarounds
    - Familiarization with new platforms and their upkeep
    - Respond to Operational needs/problems



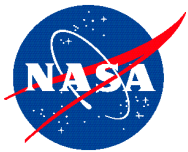
# **NCC 98 INITIAL RELEASE ORR**

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## **D. OPERATIONAL EVALUATION TESTING (OET)**

**MELANIE WIEDMANN**

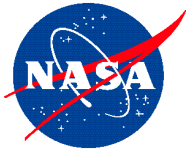


## OVERVIEW OF TESTING

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- Operations Evaluation Testing (OET) maximizes operational realism through the use of operations scenarios and the involvement of operations personnel.
- Testing was conducted on the operational hardware suite.
- OET is based on the Master Acceptance Test Plan for NCCDS releases and the NCC98 Release Specific Addendum.
- A total of 21 operational scenarios were defined for NCC 98
- Extensive Engineering Interface (EIF) Testing was coordinated and completed with Space Network customers.

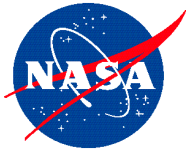


## OPERATIONS SCENARIOS

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- Operations scenarios are based on operator positions and make maximum use of operations data to maintain realism.
- Operations scenarios also included use of the shadow tool in which data was pulled from the ops LAN and fed into the NCC98 system to simulate data from all SN customers under realistic operations loads.
- 21 test items were successfully completed
- Operations scenarios are available online from the NCC98 web page at “<http://ncc98.gsfc.nasa.gov/doc-list/oet-atpd/toc.htm>”

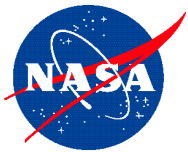


# ENGINEERING INTERFACE TESTS (EIFS)

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- These tests focused on interface connectivity and verification of backwards compatibility; NCC98 problems were documented as PRs and any interface issues were documented through Interface Incident Reports (IIRs).
- Year 2000 EIFs were successfully conducted with multiple MOCs on October 6 and December 17, 1998 simulating rollover from 1999 to 2000. The test report was published via email on December 23, 1998 and is available upon request from NSIA
- 35 EIFs were run successfully, encompassing all SN customers and elements.
- EIF procedures are also available at  
“<http://ncc98.gsfc.nasa.gov/doc-list/oet-atpd/toc.htm>”

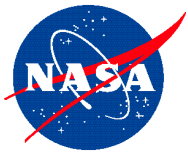


## EIF TESTING SUMMARY

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EIF	Contact Person	COMPLETED/PASSED
DAS-RT	Joe Stevens & Andre Fortin (Joe.Stevens@gsfc.nasa.gov & andre.fortin@gsfc.nasa.gov)	10/14/98
DAS-SCH	Joe Stevens & Andre Fortin (Joe.Stevens@gsfc.nasa.gov & andre.fortin@gsfc.nasa.gov)	1/22/99
EOC-RT	Dale Cole (COLED@lskmp003.atssc.allied.com)	8/13/98*
EOC-SCH	Dale Cole (COLED@lskmp003.atssc.allied.com)	1/7/99*
ERBS-RT	Justin Knavel	1/6/99
EUVE-RT	Greg Picard & Rob Nevitt (gregp@cea.berkeley.edu & rnevitt@cea.berkeley.edu)	12/22/98
FDF	Greg Helmick & Jim Capileri	10/27/98
GRO-RT	John Richter (jrichte@pop500.gsfc.nasa.gov)	12/10/98
HST-RT	Joel Smith, Greg Goulet, & Mike Pritchard (jpsmith@mail.hst.nasa.gov & ggoulet@mail.hst.nasa.gov & mpritchard@mail.hst.nasa.gov)	11/12/98
HST-SCH	Joel Smith & Steve Sands (jpsmith@mail.hst.nasa.gov & Stephen.M.Sands.1@gsfc.nasa.gov)	11/12/98

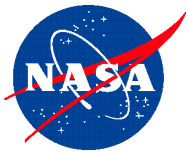


# EIF TESTING SUMMARY

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EIF	Contact Person	COMPLETED/PASSED
JSC-RT	Mike Duffee	1/14/99
JSC-SCH	Lorraine Bolton & Jerry Coppins	11/11/98
LDBP-RT	Fred Perrin (fred@master.nsbfnasa.gov)	12/17/98
LDBP-SCH	Fred Perrin (fred@master.nsbfnasa.gov)	1/20/99
LS4/5-RT	This test point was waived as LS4/5 do not use electronic I/F for existing NCC comm.	12/18/98
LS4/5-SCH	This test point was waived as LS4/5 do not use electronic I/F for existing NCC comm.	12/18/98
LS7-RT	Michelle Reeley & Rich Lonigro (Michele.A.Reeley.1@gsfc.nasa.gov & rlonigro@pop500.gsfc.nasa.gov)	12/17/98
LS7-SCH	Michelle Reeley & Rich Lonigro (Michele.A.Reeley.1@gsfc.nasa.gov & rlonigro@pop500.gsfc.nasa.gov)	12/17/98
MSFC-RT	Gary Dempsey	1/14/99
MSOCC-SCH	Verant Woodlawn ("Woody") & Howard Michelsen	12/17/98*
NES	Mike Eader (meder@pop500.gsfc.nasa.gov)	10/14/98
SDPF	Leon Jones (ljones@pop500.gsfc.nasa.gov)	1/7/99*
STARLINK-RT	Tom Kalaskey (tkalaskey@mail.arc.nasa.gov)	11/10/98
STARLINK-SCH	Tom Kalaskey (tkalaskey@mail.arc.nasa.gov)	11/10/98
TPX-RT	Sophia Malloy (smalloy@mail1.jpl.nasa.gov)	11/5/98
TPX-SCH	Sophia Malloy (smalloy@mail1.jpl.nasa.gov)	11/5/98



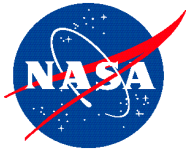
# EIF TESTING SUMMARY

Network and Mission  
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EIF	Contact Person	COMPLETED/PASSED
TRMM-RT	Ed Weidner & Joe Kowalski (eweidner@pop500.gsfc.nasa.gov & jkowalsk@pop500.gsfc.nasa.gov)	11/24/98
UARS-RT	Dave Waters (dwaters@pop500.gsfc.nasa.gov)	1/6/99
UPSJ-RT	Yasuo Okawa & Yutaka Ohshima (Okawa.Yasuo@nasda.go.jp & yutaka2.ooshima@toshiba.co.jp)	11/4/98
UPSJ-SCH	Yasuo Okawa & Yutaka Ohshima (Okawa.Yasuo@nasda.go.jp & yutaka2.ooshima@toshiba.co.jp)	11/4/98
WSC	Caren Corbett & Ted Morrison (Caren.Corbett@gsfc.nasa.gov & smtftest@tdrss.wsc.nasa.gov)	11/11/98
XTE-RT	Dave Lin & Renee' M. Taylor (dlin@csc.com & rmtaylor@pop500.gsfc.nasa.gov)	10/6/98
Y2K	Melanie Wiedmann (melanie.wiedmann@gsfc.nasa.gov)	12/17/98



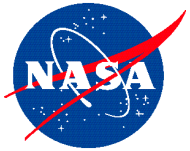


## TRAINING

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- All NCC operator positions required training on NCC98.
- All operators completed prerequisite training including review and CBT test on the NCC98 Overview Package.
- All training is scheduled to be completed by February 5, 1999.
- OET personnel will be available for on site and on call support during and after transition to NCC98.

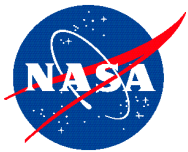


## DOCUMENTATION

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- All system users guides are available.
- Temporary Workaround Directives (TWDs) are scheduled to be completed for all significant workarounds by 2/5/99.
- Red line copies of operational procedures will be available for areas not covered by users guides.



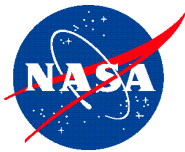
# **NCC 98 INITIAL RELEASE ORR**

Network and Mission  
Services Project

Code 450

## **EQUIPMENT SUITE STATUS**

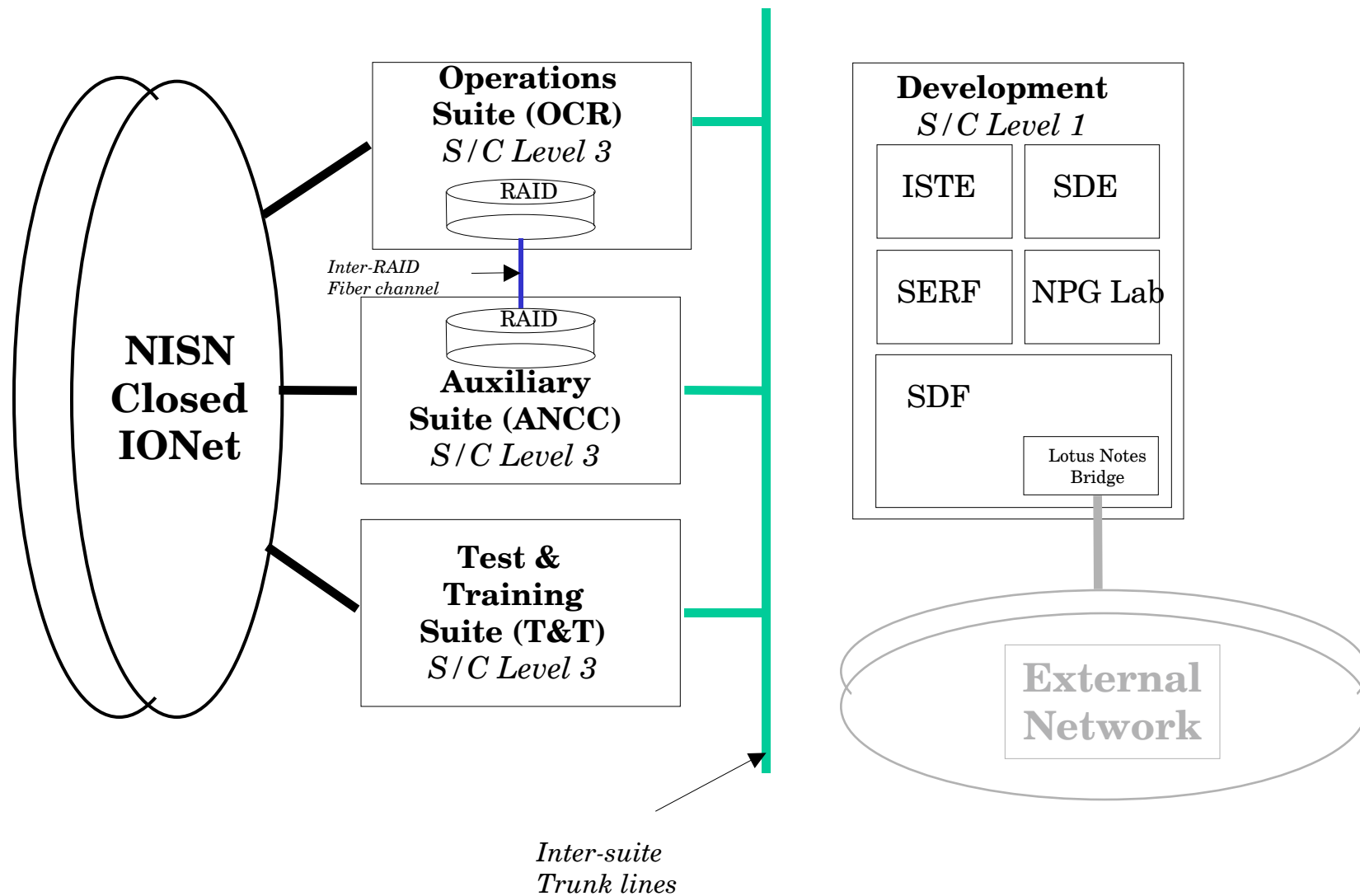
**ROGER CLASON**

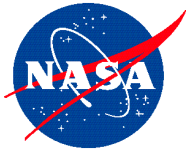


# EQUIPMENT SUITE OPS CONCEPT SUMMARY

Network and Mission  
Services Project

Code 450



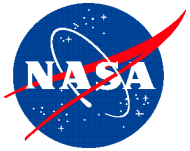


# EQUIPMENT SUITE FUNCTIONS

Network and Mission  
Services Project

Code 450

- Operational Suite
  - Primary NCCDS operational capability
  - All components redundant to meet Reliability, Maintainability, & Availability (RMA) requirements
  - Servers in room C130, VAXs in room 141, workstations in room C115
- Auxiliary Suite
  - Used for NCCDS operations if Prime Suite is unavailable due to planned or unplanned circumstances
  - Also used for testing
  - Redundant components when needed to support high availability testing and/or (RMA) requirements
  - Servers and workstations in 3/S60, VAX 3 in 262

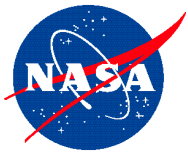


# EQUIPMENT SUITE FUNCTIONS

Network and Mission  
Services Project

Code 450

- Test and Training (T&T) Suite
  - Used for test (including EIF) & training
  - Never used operationally
  - All equipment in 262

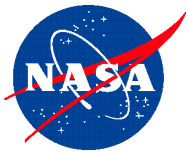


## SUITE FAILOVER STATUS

Network and Mission  
Services Project

Code 450

- Equipment “Mix & Match” capability
  - Uses inter-suite trunk lines and VLAN functionality to “patch” component from one equipment suite into another (Operational and ANCC suites only)
    - Workstation Mix & Match - used to run ANCC workstations with ops suite equipment if OCR cannot be occupied
    - CCS VAX Mix & Match - used in the event of operational CCS VAX failure
  - Mix & Match capability will be tested this week
- Database mirroring failover
  - Uses inter-RAID fiber channel and database mirroring functionality for failover of operations from operational suite to auxiliary suite (and vice versa)
  - Mirroring is implemented and tested
  - 3-node cluster failover will be tested this week



# **NCC 98 INITIAL RELEASE ORR**

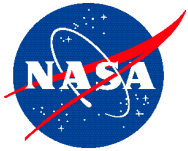
Network and Mission  
Services Project

Code 450

## **F. FACILITIES READINESS**

**LYNN MYERS**





# FACILITIES

Network and Mission  
Services Project

Code 450

## Phased Approach

### Phase 1:

Configure part of OCR for OET, conduct OET,  
**promote NCC 98 to operations**, and gain confidence

### Phase 2:

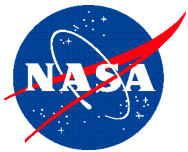
Configure remainder of OCR for operations, verify  
for operations, and promote to operations

### Phase 3:

Reconfigure initial OET workstations for final operations,  
verify, promote to operations, and complete clean-up

### Phase 4:

Configure ANCC for NCC 98, verify, promote to operations,  
gain confidence, and return to OET configuration



# PHASE 1

Network and Mission  
Services Project

Code 450

## OCR

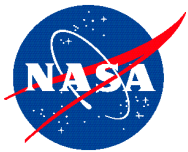
OET  
NCC 98

Normal Operations - NCC 97

SPSR  
Workstations

## Equipment Rooms

Increased electrical capacity - room C130  
SPSR Server Cluster  
Firewalls  
NPG'S  
TUT Servers  
SCD's  
LAN Management PC and LAN Equipment  
CCTV racks and switching equipment  
OE Workstation - room 141



## PHASE 2

Network and Mission  
Services Project

Code 450

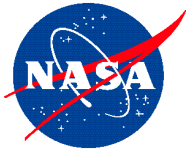
# Network Control Center Operations Control Room

Normal Operations  
NCC 98

SPSR  
Workstations

Remove existing NCC 97 equipment

Final Installation of SPSR Workstations and CCTV



## PHASE 3

Network and Mission  
Services Project

Code 450

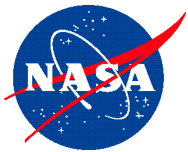
### Network Control Center Operations Control Room

Final Reallocation of SPSR Workstations

Normal Operations  
NCC 98

### Equipment Rooms

remove NCC 97 equipment  
reconfigure OE console  
clean up CCTV equipment



## PHASE 4

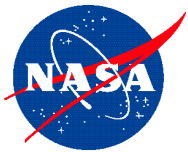
Network and Mission  
Services Project

Code 450

### ANCC

remove existing NCC 97 equipment  
firewall  
NPG  
SPSR server cluster  
TUT server  
CCTV equipment  
LAN equipment and control  
SCD

\*verified room 180 for operations before commencing work in ENCC



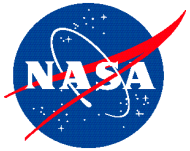
# **NCC 98 INITIAL RELEASE ORR**

Network and Mission  
Services Project

Code 450

## **G. CUSTOMER/ELEMENT READINESS**

**SHELLEY HARPER**



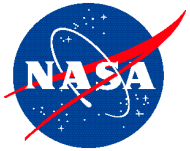
## **CUSTOMER/ELEMENT READINESS**

Network and Mission  
Services Project

Code 450

### **TOPICS**

- NCC 98 Transition Web Page
- NCC 98 TDRS Unscheduled Time
- Interface Incident Resolution Status
- Release Related Activities



## NCC 98 TRANSITION WEB PAGE

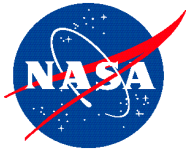
Network and Mission  
Services Project

Code 450

<http://ncc98.gsfc.nasa.gov/trans.htm>

- Web page provides customers/elements transition information, including:
  - NCC 98 Overview
  - Transition Plan/Timeline
  - TDRS Unscheduled Time Information
  - Interface Incident Summary Report
  - Reference Documents
  - Points of Contact
- Will be updated throughout transition to provide customers/elements with up-to-date information



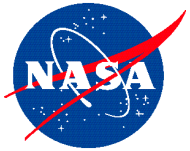


## TDRS UNSCHEDULED TIME - TUT

Network and Mission  
Services Project

Code 450

- Closed IONET customers can begin accessing Web Based TUT immediately following transition
  - “How To” Presentation - “<http://ncc98.gsfc.nasa.gov/trans.htm>”
- Web based TUT on the CNE will be available soon after transition
  - Customers will continue to receive information via e-mail
  - Will be notified once access via the web is available

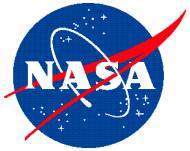


# INTERFACE INCIDENT REPORTS

Network and Mission  
Services Project

Code 450

- IIR Purpose
  - To document problems relating to the interface between the NCCDS and one or more customer and/or element
  - Generated by test personnel at time of incident
- IIR Process
  - Serves to track the problem until its resolution
  - Clarifies the incident for all parties
  - Assigns appropriate personnel to analyze the incident and recommend a solution
- IIR Status
  - Open: An interface incident has occurred. The problem and analysis assignments are being defined.
  - Pending: preliminary resolution has been identified, but an implementation has not been scheduled.
  - Closed: A solution to the incident has been implemented and tested.

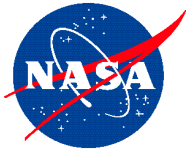


## IIR SUMMARY STATISTICS

Network and Mission  
Services Project

Code 450

- A total of 7 IIR's were generated
  - 4 of the 7 have not been closed
    - 3 must be closed prior to transition
    - Remaining 1 is not transition critical
- A full report is available at  
“<http://ncc98.gsfc.nasa.gov/trans.htm>”

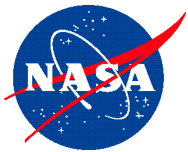


## SUMMARY OF PENDING IIR's

Network and Mission  
Services Project

Code 450

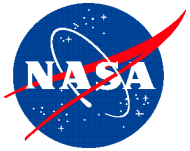
- PENDING IIR's
  - Critical for transition
    - IIR 154 - NCC 98 system rejects maneuver sequences with overlapping epoch times that are received with less than 30 second gaps between sequences
      - ACTION: FDF Procedural change is being agreed upon
    - IIR 155 - When a request is retransmitted by the User Planning System (UPS), NCC 98 marks the request as invalid due to “duplicate message ID” and does not process the request
      - ACTION: UPS software patch available for installation after Jan. 25 for MSOCC, HST, and DAS.
        - » If not implemented prior to transition a work around has been identified



# IIR 155 - UPS SOFTWARE PATCH

Network and Mission  
Services Project

Code 450

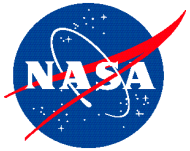


## SUMMARY OF PENDING IIR's

Network and Mission  
Services Project

Code 450

- Critical for transition (cont.)
  - IIR 156 - The TRUST system reports unknown parsing errors due to bytes 54-60 of the Schedule Result Message (SRM); bytes were newly added and do not apply to baseline customers, however they are not being ignored by TRUST
    - ACTION: TOPEX is implementing a software change on 1/26; a work around has been established for LDBP

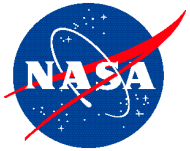


## SUMMARY OF PENDING IIR's

Network and Mission  
Services Project

Code 450

- Not transition critical
  - IIR 152 - WSC sent an Service Level Status Report (SLR) with '06' for the number of available MA/SMA return links vice the available values of '00-05'
    - ACTION: Pending Resolution



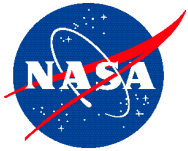
## SUMMARY OF CLOSED IIR's

Network and Mission  
Services Project

Code 450

- IIR 150 - A Schedule Result Request (SRR) was transmitted with an extra character at the end of the message, indicating another Support Identifier (SUPIDEN) was to follow but one did not
  - ACTION: EOC implemented a software change to eliminate the extra character
- IIR 151 - Data bit jitter value of '3' was sent vice the accepted 0,1, or 2
  - ACTION: A NCCDS database change was made to enable a value of '3'
- IIR 153 - Schedule delete requests from UPS J were marked as invalid and were not processed because the message ID in the delete request was the same as the message ID in the associated schedule add request
  - ACTION: NASDA software change to UPS J



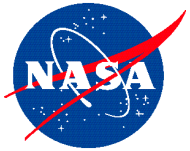


## RELEASE RELATED ACTIVITIES

Network and Mission  
Services Project

Code 450

- WSC:
  - NCC 98 requires WSC to send a “new” SHO status message when events are successfully deleted from from the WSC database
    - ACTION: WSC implemented software change to allow this to be a configurable variable
      - STATUS: Software has been delivered; requires a local alert notice to change logical value - will be done during transition
  - STGT required software change to accept the SHO subheader for the Dual User SHO and SNIP PN
    - ACTION: Software change (ETN-295) enables STGT to accept SHO's
      - STATUS: Delivery is planned for early February

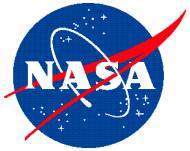


## RELEASE RELATED ACTIVITIES

Network and Mission  
Services Project

Code 450

- SDPF: Exchange issues for messages non D-UIFC's
  - ACTION: Software changes are being implemented to remove the D-channels from the database
    - STATUS: Testing has been completed with GRO, HST, TRMM, XTE
- TCP Customers (HST, EOS): Transition to use of NCC 98 IP service addresses

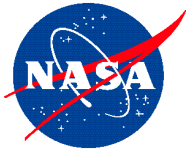


# CUSTOMER/ELEMENT CONCURRENCE

Network and Mission  
Services Project

Code 450

Customer/Element	Action Needed For Transition	Ready For Transition
WSC	<ul style="list-style-type: none"><li>- OPM-51 S/W Delivered</li><li>- S/W 99001 Delivered to STGT</li></ul>	
SDPF	UIFC's S/W changes implemented	
HST	<ul style="list-style-type: none"><li>- Aware of transition to NCC 98 IP service addresses</li><li>- UPS Software Patch (duplicate message ID's) or use of work around</li></ul>	
EOS	<ul style="list-style-type: none"><li>- Aware of transition To NCC 98 IP service addresses</li><li>- Software change implemented to eliminate extra character at the end of message</li></ul>	
DAS	<ul style="list-style-type: none"><li>- UPS Software Patch (duplicate message ID's) or use of workaround</li></ul>	

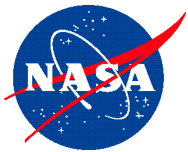


# CUSTOMER/ELEMENT CONCURRENCE

Network and Mission  
Services Project

Code 450

Customer/Element	Action Needed for Transition	Ready For Transition
LDBP	<ul style="list-style-type: none"><li>- Successfully tested database change made to enable a data bit jitter value of '3'</li><li>- Agreed Work Around for parsing error</li></ul>	
NASDA	Duplicate message ID Software change to UPS J	
UPS	Duplicate message ID Software change delivered	
TOPEX	Software change to correct parsing error	
MSOCC	UPS Software Patch (duplicate message ID's) or use of workaround	



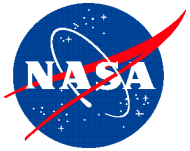
# NCC 98 INITIAL RELEASE ORR

Network and Mission  
Services Project

Code 450

## H. SECURITY

## DICK PRICE

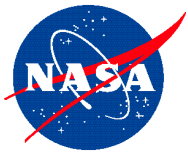


# INFORMATION TECHNOLOGY SECURITY

Network and Mission  
Services Project

Code 450

- Security Plan
- Penetration Testing
  - QSS (1 Oct 98 - CyberCop)
    - Focused on system access and denial of service
  - CSC
    - Focused on firewall and WWW TUT Server
  - Aerospace (Final Configuration Test - 1/25/99)
    - Focused on manipulating message traffic
- Documents to be completed and signed prior to transition
  - Risk Management Plan
  - Certification
  - Rules of Behavior
  - Authorization to Process

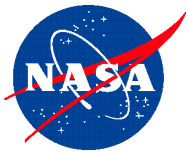


# **NCC 98 INITIAL RELEASE ORR**

Network and Mission  
Services Project

Code 450

## **I. TRANSITION PLAN**



# **NCC 98 INITIAL RELEASE ORR**

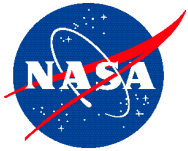
Network and Mission  
Services Project

Code 450

## **INTERNAL ACTIVITIES AND TIMELINE**

**JOHN RUSSELL**





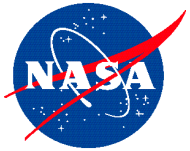
# INTERNAL ACTIVITIES AND TIMELINE

Network and Mission  
Services Project

Code 450

## TOPICS

- Transition Summary
- Transition Timeline

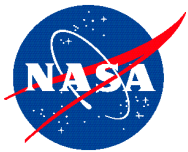


# TRANSITION SUMMARY

Network and Mission  
Services Project

Code 450

- Transition Overview
  - Migrate Database from UNYSIS/DMS to HP/Oracle
  - Update system configuration to support Operations vice OET
  - Enact network changes to establish external communications
  - Switch control from legacy system to NCC 98
- Goals of the Transition Process
  - Maintain integrity of Database Migration
  - Identify and perform all necessary steps
  - Minimize time the NCC is off-line
  - Minimize time the database is frozen



# TRANSITION TIMELINE

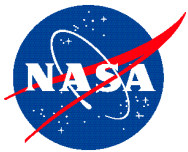
Network and Mission  
Services Project

Code 450

## High-Level Timeline of Internal Activities for NCC 98 Transition

Start Time	Activity	Dependencies/Comments
T-12 hours	Updates to external DNS	
T-9 hours	Activate Weekly Forecast Schedule	None
	Dynamic Dump on SPS	Database Freeze in effect
T-8 hours	Perform Database migration	
T-3 hours	Cold start CCS; verify system readiness	
T-1 hours	Establish Connection to Closed IONET	
	Activate Firewall	Verify NCC Multicast Address
T-0.5 hours	Terminate NCC 97	NCC is now off-line!
	Move RS-422 connections	
T+0 hours	Start NPG 98	NCC is back on-line under NCC 98!
T+3 hours	Remove database freeze	
T+n	Advise NISN of DNS authority change	

- Transition dry runs were successfully performed on January 11th & 18th



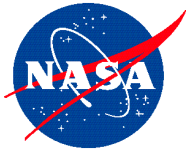
# **NCC 98 INITIAL RELEASE ORR**

Network and Mission  
Services Project

Code 450

## **EXTERNAL ACTIVITIES AND TIMELINE**

**JUL SCARBOROUGH**



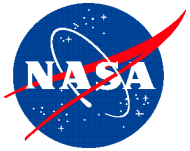
## EXTERNAL TRANSITION

Network and Mission  
Services Project

Code 450

### Scheduling Scenario

- NCC Operations will alert the customer community approximately 2 weeks in advance of transition.
- Customers will be told to hold forecast requests and real-time updates for events until after projected freeze.
- Database freeze takes place during transition timeline.
- Realtime updates unfrozen immediately following NCC 98 transition.
- Customers will be advised that forecast requests may be sent.



## EXTERNAL TRANSITION

Network and Mission  
Services Project

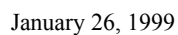
Code 450

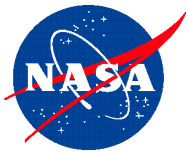
### Realtime Ops

- Ops will ensure the maximum number of SHOs and Vectors are resident at WSC before transition.
- Ops will coordinate with customers and WSC in real-time when NCCDS is unavailable during the transition for WSC to provide GCMRs.
- Ops will coordinate the required WSC local Alert Notice for the required logical value change.



Code 450





# **NCC 98 INITIAL RELEASE ORR**

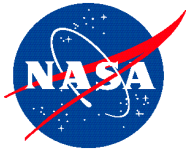
Network and Mission  
Services Project

Code 450

## **J. CONTINGENCY PLAN**

**JUL SCARBOROUGH**



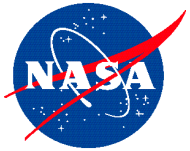


## CONTINGENCY PLAN

Network and Mission  
Services Project

Code 450

- After transition to NCC 98 system, a small window of time will exist for return to the Baseline NCCDS in the event that NCC 98 fails to support operations as necessary.
- The longer the database freeze can be maintained, the larger the window of opportunity for falling back to the legacy system. However at some point, the decision to “fix NCC 98” instead of returning to the legacy system must be made.
- In the unlikely event of a major NCC 98 failure, a decision to fallback may be made by the SN Project Manager based on input from development, test, system administration, and operations personnel.

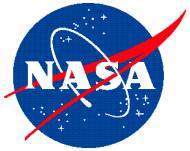


## STEPS REQUIRED TO RETURN TO LEGACY SYSTEM

Network and Mission  
Services Project

Code 450

- Update the external DNS to be accessible to NISN DNS server. Notify Open IONET customers to return to NCC 97 IP service addresses at a specified time.
- Transfer control from the NCC 98 system to the legacy system
  - Terminate NCC 98 Firewall applications;
  - Terminate NPG 98 application;
  - Move RS-422 lines from NCC 98 SCD for WSC and SP&M to the desired NFE;
  - Startup RAP applications on RAP1 and RAP2;
  - Startup CCS applications on CCS1 and CCS2.

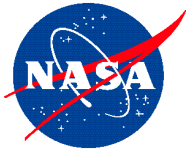


## STEPS REQUIRED TO RETURN TO LEGACY SYSTEM (Cont.)

Network and Mission  
Services Project

Code 450

- Review any schedule updates made on the NCC 98 system and update the legacy system as needed (e.g., resubmit SARs, FDF retransmit vectors, transmit SHOs).
  - Scheduling algorithms between the two systems are different, so the resulting events on the legacy system may be different than those on the NCC 98 system.

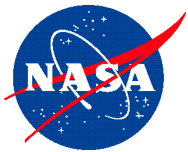


## CONCLUSION

Network and Mission  
Services Project

Code 450

- The rigorous testing that was performed on NCC 98 reduces the likelihood that this contingency plan will be needed.



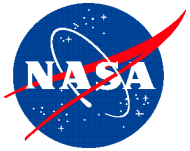
# **NCC 98 INITIAL RELEASE ORR**

Network and Mission  
Services Project

Code 450

## **K. CSOC OPERATIONAL READINESS**

**JOE SNYDER**



## CSOC OPERATIONAL READINESS

Network and Mission  
Services Project

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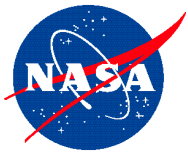
With overall concurrence of this Operational Readiness Review  
CSOC is staffed and ready to support NCC 98.

### **Concern:**

- The significant number of Software Problem Reports that require operator work arounds and future funding required for fixes.

### **Open Item:**

- NCC 98 Skills catalogs will be finalized after transition at which time formal operator certifications will occur.



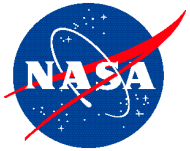
# **NCC 98 INITIAL RELEASE ORR**

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## **L. OPEN ITEM REVIEW**

**ROGER CLASON**



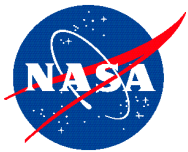
## OPEN ITEMS

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- Complete cluster failover testing
- Complete security evaluation process
- Convert remaining PR's
- Close remaining IIR's





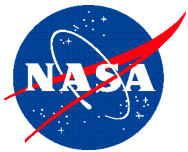
# **NCC 98 INITIAL RELEASE ORR**

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## **M. BOARD READINESS ASSESSMENT**

**BILL MACK**

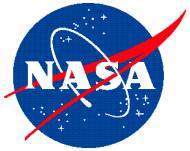


# NCC 98 INITIAL RELEASE ORR

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## ACRONYM LIST

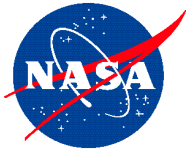


## ACRONYM LIST

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ANCC	Auxiliary NCC
CCS	Communications and Control Segment
CCTV	Closed Circuit Television
COTS	Commercial Off The Shelf
CSOC	Consolidated Space Operations Contract
DAS	Demand Access Service
EIF	Engineering Interface
EOC	EOS Operation Center
FDF	Flight Dynamic Facility
FTP	File Transfer Protocol
GCMR	Ground Control Message Request
GUI	Graphical User Interface

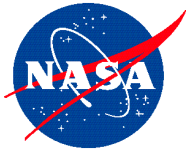


## ACRONYM LIST

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HST	Hubble Space Telescope
IIR	Interface Incidents Reports
IOA	Integrated Operational Architecture
IP	Internet Protocol
ITS	Intelligent Terminal Segments
JISTT	Joint Integrated & System Test Team
LDBP	Long Duration Balloon Program
MA	Multiple Access
MOC	Mission Operations Center
NISN	NASA Integrated Services Network
NSIA	Network System and Integration Analysis

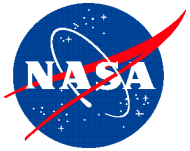


## ACRONYM LIST

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MSOCC	Multisatellite Operations Control Center
NCC	Network Control Center
NCCDS	Network Control Center Data System
NCCPO	Network Control Center Project Office
NCD	NCC Centralized Delogger
NFE	NCC Front End
NPG	NCCDS Protocol Gateway
NSM	Network System Manager
OCR	Operation Control Room
ODM	Operations Data Message
PR	Problem Report

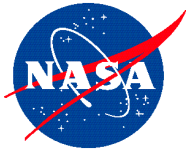


## ACRONYM LIST

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RAP	Restricted Access Processor
SAR	Schedule Add Request
SAS	Service Accounting Segment
SCD	Small Conversion Device
SDPF	Sensor Data Processing Facility
SHO	Service Schedule Order
SLR	Service Level Status Report
SN	Space Network
SPS	Service Planning Segment
SPSR	Service Planning Segment Replacement
SUPIDEN	Support Identifier



## ACRONYM LIST

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TCP	Transmission Control Protocol
TSW	TDRS Scheduling Window
TUT	TDRS Unscheduled Time
TWD	Temporary Workaround Directives
UPS	User Planning System
WSC	White Sands Complex